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Bureau of Children's Health
Texas Newborn Screening Program

TDH
TEXAS DEPARTMENT OF HEALTH

Texas Department of Health
www.tdh.state.tx.us/newborn/newborn.htm
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Handle With Care…..

My Future is in

Your Hands!

Newborn Screening Specimen Collection Guide

Texas Department of Health
Bureau of Children's Health
Texas Newborn Screening Program

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TEXAS DEPARTMENT OF HEALTH

Texas Department of Health
Newborn Screening Program
1100 West 49th Street
Austin, Texas 78756
512/458-7111

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Every baby deserves the best chance to have a healthy future. That is why all children born in Texas are tested for certain serious birth defects.

The most critical step in preventing the damage caused by inherited diseases is to check a newborn's blood within the first 72 hours of life and a second test at one to two weeks of age. ***A satisfactory or valid newborn screening specimen is most important.*** These specimens must be submitted to the Texas Department of Health (TDH) Laboratory on a properly completed filter paper collection form obtained from the department.

Texas law [TAC §37.55(a)] states the physician or non-physician attending a newborn has the primary responsibility for causing the screening tests to be performed --- and that a **satisfactory and valid** blood specimen be submitted to the TDH on a properly completed filter paper collection form. The TDH Laboratory performs the newborn screening test series on specimens received from over 4,000 locations around the state. Approximately 3,500 specimens arrive in the mail each day and each specimen is visually inspected to determine if it is suitable to test.

Unsuitable specimens cause delays that can seriously affect the health of a newborn. This booklet shows step-by-step how to collect a ***satisfactory and valid*** newborn screening specimen. Before collecting a newborn screening specimen, please carefully read and follow the directions provided in this booklet. Keep this booklet in a safe, convenient place for handy reference.

NEONATAL SCREENING
BLOOD SPECIMEN COLLECTION
AND HANDLING PROCEDURE

1 Equipment: sterile lancet with tip less than 2.4mm, sterile alcohol prep, sterile gauze pads, soft cloth, blood collection form, gloves, and eye protection.

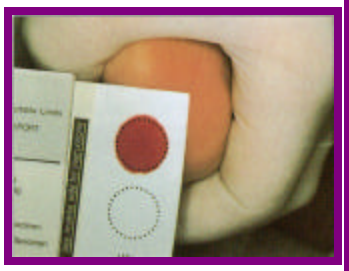
2 Complete ALL information. Do not contaminate filter paper circles by allowing the circles to come in contact with spillage or by touching before or after blood collection. Keep the yellow copy if applicable.

3 Hatched area indicates safe areas for puncture site.

4 Warm site with soft cloth, moistened with warm water up to 41°C, for three to five minutes.

5 Cleanse site with alcohol prep. Wipe DRY with sterile gauze pad.

6 Puncture heel. Wipe away first blood drop with sterile gauze pad. Allow another LARGE blood drop to form.



7 Lightly touch filter paper to LARGE blood drop. Allow blood to soak through and completely fill circle with SINGLE application to LARGE blood drop. (To enhance blood flow, VERY GENTLE intermittent pressure may be applied to area surrounding puncture site). Apply blood to one side of filter paper only.

8 Fill remaining circles in the same manner as step 7, with successive blood drops. If blood flow is diminished, repeat steps 5 through 7. Care of skin puncture site should be consistent with your institution's procedures.

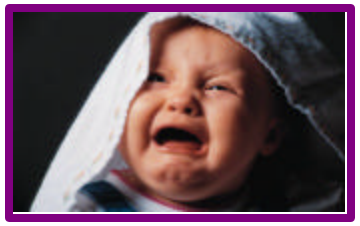
9 Dry blood spots on a dry, clean, flat non-absorbent surface for a minimum of three - four hours.

10 Mail completed form directly to the Newborn Screening Laboratory as soon as possible and no later than 24 hours after collecting the specimen.

Ideal Newborn Screening Specimen Characteristics

- All five circles are completely filled and saturated with blood. Universal precautions pertaining to blood and body fluids should be maintained.
- Blood should be applied from only one side of the paper and appear as an even, uniform layer. The recommended collection technique is to absorb the blood directly from the heel onto the back of the paper while watching the circle to ensure that it completely fills.
- The specimen should be air dried for at least 3 – 4 hours on a flat, nonabsorbent surface in a horizontal position, protected from heat or direct sunlight.
- The specimen should be mailed immediately after drying (accumulated or "batched" specimens may result in specimens too old to test).

Invalid Newborn Screening Specimen Characteristics

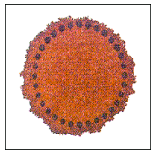


The following characteristics will require a repeat specimen:

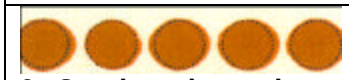
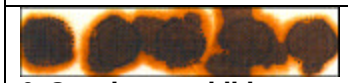
- Applying blood using capillary tubes. Layering successive drops of blood can cause incomplete or uneven saturation and incomplete filling of each circle.
- Anticoagulants (EDTA, citrate) will interfere with NBS assays.
- Failing to wipe off alcohol residue can dilute the specimen.
- Specimens accompanied by improper or incomplete paper work.
- Serum separation caused by specimen being placed in plastic bag or plastic sleeve before the specimen has completely dried.
- Specimens placed in a drawer, box, or other container while still wet, or mailing specimen before it has completely dried.
- Hanging specimen to dry or standing it on end causing serum separation.

Do the Simple Spot Check……
Make Sure Your Specimen is Valid

Valid Specimen



Allow a sufficient quantity of blood to soak through to completely fill the preprinted circle on the filter paper. Fill all required circles with blood. Do not layer successive drops of blood or apply blood more than once in the same collection circle. Avoid touching or smearing spots.

Invalid Specimens	Possible Causes
 **1. Specimen quantity insufficient for testing**	• Removing filter paper before blood has completely filled circle or before blood has soaked through to second side. • Applying blood to filter paper with capillary tube. • Allowing filter paper to come into contact with gloved or ungloved hands or substances such as hand lotion or powder, either before or after blood specimen is collected.
 **2, Specimen appears scratched or abraded.**	• Applying blood with a capillary tube or other devide.
 **3. Specimen is not dry before mailing.**	• Mailing specimen before drying for a minimum of four hours.
 **4. Specimen appears supersaturated.**	• Applying excess blood to filter paper, usually with a device. • Applying blood to both sides of filter paper.
 **5. Specimen appears diluted, discolored or contaminated.**	• Squeezing or “milking” of area surrounding the puncture site. • Allowing filter paper to come into contact with gloved or ungloved hands or substances such as alcohol, formula, antiseptic solutions, water, hand lotion or powder, etc., either before or after blood specimen collection. • Exposing blood spots to direct heat.
 **6. Specimen exhibits serum rings.**	• Not wiping alcohol from puncture site before making skin puncture. • Allowing filter paper to come in contact with alcohol, hand lotion, etc. • Squeezing area surrounding puncture site excessively. • Drying specimen improperly. • Applying blood to filter paper with capillary tube.
 **7. Specimen appears clotted or layered.**	• Touching the same circle on filter paper to blood drop several times. • Filling circle on both sides of filter paper.
 **8. No blood.**	• Failure to obtain blood specimen.

Remember! Handle With Care…..
My Future is in Your Hands!

TIPS TO ENSURE VALID SPECIMENS

- **Don't "batch" specimens (waiting for 4 or 5 specimens to mail at the same time).**
- **Plan ahead for holidays and weekends. If the holiday falls on Thursday or Friday, and the specimen is not mailed until Monday, there will be a 3-4 day delay in receiving the results.**
- **Fill out demographic information completely and legibly.**
- **If known, use the TDH Laboratory number of previous specimens.**
- **If possible, mail the specimen from the post office rather than a neighborhood mailbox (specimen could become overheated or baked).**
- **Designate a responsible party to mail specimens and to receive results.**
- **Keep a log of the form number or keep the yellow copy from all submitted specimens.**
- **The NBS test are not run "stat." Please contact the TDH Laboratory if results from particular tests are needed immediately.**
- **If local testing is performed for a disorder, please contact the TDH Laboratory. The Newborn Screening Tests will still need to be performed for the other disorders.**
- **Follow the recommended collection procedures carefully to ensure a specimen is valid and acceptable.**

For more information call 800/422-2956. Please use the following extensions to direct your call to the appropriate Newborn Screening staff:

Laboratory 7333
- General information
- Technical information
- Specimen collection and handling procedures

Supplies 7661
- Forms (filter paper)
- Envelopes
- Provider labels

Billing 7317
- Payments (NBS4 Forms)

Results 7578
- Routine specimen reporting (For follow-up on abnormal screens/disorders, call Case Management.)

Quality Assurance 3233
- Unsatisfactory specimen collection

Case Management 2129
- General information
- Free literature orders

Congenital Adrenal Hyperplasia (CAH) 2128

Congenital Hypothyroidism 7715

Galactosemia 2128

Hemoglobinopathies (e.g., Sickle Cell Disease) 2071

Phenylketonuria (PKU) 2128